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a plurality of stations interconnected by data carrying segments so as to form a ring network,
each station comprising a network interface for transmitting data onto a respective segment of the ring network for receipt by the network interface of a subsequent station, whereby the network interfaces of all stations are operable at data rates synchronized with a single master clock, and wherein the network interfaces of at least two stations in the system are operable such that the data rate in a first segment of the ring is higher than that in a second segment of the ring, while remaining synchronized with said master clock.

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67. (New) A system as in claim 66 wherein each segment of the ring conveys one or more channels of user information at a relatively high data rate, and one or more channels of control information, the data rate for control information being constant between the first and second segments, while the data rate for user information is different.

68. (New) A system as in claim 67 wherein synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of the first segment.

69. (New) A system as in claim 68 wherein each frame conveys control bits forming part of a control message frame transmitted over plural frames over all segments of the ring.

70. (New) A system as in claim 69, including means for synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

71. (New) A network interface for use in interfacing a station to a local communication system comprising a synchronous ring network, each station in use being connected between incoming and outgoing segments of the ring network, the interface comprising:

means for transmitting data onto the outgoing segment of the ring network for receipt by a subsequent station,

the interface being operable, at least in a mixed-speed mode, to transmit data on the outgoing segment at a data rate synchronized with but different to the rate of data received on the incoming segment.

72. (New) An interface as in claim 71 wherein:

in said mixed speed mode, each segment of the ring conveys one or more channels of user information at a relatively high data rate, and one or more channels of control information, the data rate for control information being constant between the incoming and outgoing segments, while the data rate for user information is different.

73. (New) An interface as in claim 72 wherein:

in said mixed speed mode, synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of one of said segments.

74. (New) An interface as in claim 73 wherein:

in said mixed speed mode, each frame conveys control bits forming part of a control message frame transmitted over plural frames over all segments of the ring.

75. (New) An interface as in claim 74 including means for synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

76. (New) An apparatus for use as a station in a local communication system, the apparatus comprising at least one fundamental unit and a network interface circuit as in claim 71.

77. (New) An apparatus as in claim 76 wherein said functional unit comprises a source or destination of audio data.

78. (New) A local communication method for use with a plurality of stations interconnected by data carrying segments so as to form a ring network, each station comprising a network interface for transmitting data onto a respective segment of the ring network for receipt by the network interface of a subsequent station, said method comprising:

operating the network interfaces of all stations at data rates synchronized with a single master clock, and

operating the network interfaces of at least two stations in the system such that the data rate in a first segment of the ring is higher than that in a second segment of the ring, while remaining synchronized with said master clock.

79. (New) A method as in claim 78 wherein each segment of the ring conveys one or more channels of user information at a relatively high data rate, and one or more channels of control information, the data rate for control information being constant between the first and second segments, while the data rate for user information is different.

80. (New) A method as in claim 79 wherein synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of the first segment.

81. (New) A method as in claim 80 wherein each frame conveys control bits forming part of a control message frame transmitted over plural frames over all segments of the ring.

82. (New) A method as in claim 81, including synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

83. (New) A network interface method for use in interfacing a station to a local communication system comprising a synchronous ring network, each station in use being connected between incoming and outgoing segments of the ring network, the method comprising:

transmitting data onto the outgoing segment of the ring network for receipt by a subsequent station,

operating the interface, at least in a mixed-speed mode, to transmit data on the outgoing segment at a data rate synchronized with but different to the rate of data received on the incoming segment.

84. (New) An interface method as in claim 83 wherein:
in said mixed speed mode, each segment of the ring conveys one or more channels of user information at a relatively high data rate, and one or more channels of control information, the data rate for control information being constant between the incoming and outgoing segments, while the data rate for user information is different.

85. (New) An interface method as in claim 84 wherein:
in said mixed speed mode, synchronization is maintained by the provision of a regular frame structure which has the same frame period in both segments of the network, but a larger quantity of data in each frame of one of said segments.

86. (New) An interface method as in claim 85 wherein:

in said mixed speed mode, each frame conveys control bits forming part of a control message frame transmitted over plural frames over all segments of the ring.

87. (New) An interface method as in claim 86 including synchronizing one or more digital audio data sources, for which source data is carried in the fixed rate portions of each frame, with the data rates of the interface.

88. (New) Method for use as a station in a local communication system, the method comprising use of at least one functional unit and a network interface method as in claim 83.

89. (New) A method as in claim 88 wherein said functional unit comprises a ~~source or destination of audio data.~~